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Notes on *Baeria* and *Lasthenia**

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In the North American Flora *Baeria* and *Lasthenia* are treated as distinct genera although only one evident character can be found upon which to maintain their separation. This consists in the fusion of the involucre bracts into a definite cup-like structure in the case of *Lasthenia*, while in *Baeria* the bracts are entirely distinct or at the most only lightly united at the very base. Genera based upon single characters are rarely satisfactory but since in this case the species of each group are more closely related to each other than they are to any species in the other group and since the merging of the two into one, as was once attempted by Dr. Greene† but later abandoned by the same author,‡ would lead to much confusion in the nomenclature, it seems better to retain each as a distinct genus.

BAERIA

The date assigned by most authors for the publication of *Baeria* is 1835. Dr. J. H. Barnhart, to whom I am indebted for much bibliographic assistance, has called my attention to the fact that the signature in which the description appears was passed by the Russian censor on December 25, 1835, and that after making proper allowance for the difference between the Russian (Julian) and Gregorian calendars the actual date of publication must have been after the first of January, 1836. It is certain, however, that *Baeria* was published before *Burrielia*, its oldest synonym, for the part of De Candolle's Prodrômus containing the diagnosis of this latter genus did not appear until after the middle of 1836.

With *Lasthenia* eliminated, *Baeria* forms a satisfactory natural

* This article is supplemental to the treatment of these genera in the North American Flora by the author.

† Man. Bay Reg. 203. 1894.

‡ Fl. Fran. 437. 1897.

genus of five sections, of which all except PLATYCARPHA have been considered, at one time or another, as constituting distinct genera. These will now be discussed seriatim and reasons given for the author's disposal of doubtful species. Field numbers are not cited in this paper since many of the species are so similar in appearance that they are not infrequently mixed on the sheets, even by discriminating collectors.

§ BURRIELIA

Burrielia was described as a genus in 1836 by De Candolle, who recognized three species, the first two of which are forms of the slightly earlier *Baeria chrysostoma* Fisch. & Mey. The third is *B. microglossa* DC., which differs from the true *Baerias* chiefly in its essentially cylindric involucre and subulate receptacle. *Burrielia leptalea* A. Gray was added in 1865 but was transferred to *Baeria* in the Synoptical Flora in 1884, there having been discovered in the meantime an intermediate species, *Baeria debilis* Greene, which, although much like *B. leptalea*, had a campanulate involucre nearly as broad as in the accepted species of *Baeria*. This again reduced *Burrielia* as accepted by Gray to its third species and left as its chief distinguishing character only the cylindric involucre. On examining the type material of *B. leptalea*, however, I find that the involucre is narrowly turbinate and scarcely wider than in *B. microglossa*. It is thus seen that this involucreal character is too variable and indefinite to be of generic value, for which reason I have followed Dr. Greene's treatment and have thrown all of the species here mentioned into *Baeria*, but have retained BURRIELIA as a section because of the subulate receptacle in the three species referred thereto. All other species of *Baeria* possess subglobose or conic receptacles which approach the subulate shape only in starved or depauperate plants.

§ EUBAERIA

My second section comprises the true *Baerias*. The receptacle is here conic and muriculate; the pubescence is hirsutulous or strigose, never glandular, and the pappus when present consists of mostly uniform paleae or bristles. To this section belongs *B. chrysostoma* Fisch. & Mey., the type of the genus and by far the

most important species both because of its abundance, particularly in California, where thousands of acres of plain and foothill slope are yellow with its bloom each spring, and also because of its richness in forms. The description of a number of these forms as species by earlier botanists was largely the result of attaching undue importance to characters of the pappus. In my *Compositae of Southern California** I have attempted to point out the instability of such characters and to arrange some of the forms into natural groupings. Since the type of this species was gathered in the vicinity of Bodega Bay on the coast of Sonoma County (lat. 38° 20' N.) some have been led to suppose that it was the broad-leaved seacoast form. However, the original description reads: "foliis . . . linearibus integerrimis," and the plate published by the authors of the species eleven years later illustrates a plant with very slender acute leaves. A specimen determined by Meyer and preserved in the Brandegee Herbarium at the University of California is also of the slender upland form. It therefore seems certain that the common form with linear-lanceolate acute leaves and ovate acute involucre bracts is the original *B. chrysostoma* and that the type specimens were collected not on the shores of Bodega Bay but at some locality not under the direct influence of the sea. The broad-leaved form has been described as *B. hirsutula* Greene and since it differs in its broader and roundish somewhat obtuse involucre bracts as well as in its leaves, it may be accepted as a distinct species at least provisionally.

§ PLATYCARPHA

The section PLATYCARPHA forms a natural link between EUBAERIA, with which it agrees in its pappus characters, and DICHAETA, which it closely resembles in habit, but it is unlike either in its smooth campanulate involucre with carinately thickened bracts. There is but a single species, *B. platycarpha* A. Gray, since *B. carnosus* Greene is considered to be an inconstant variant with usually entire leaves and more prominently carinate bracts. There are two sheets of the latter species at the Gray Herbarium, collected by Dr. Greene at Vallejo, April 14 and 16, 1883, and thus presumably a part of the type collection. The

* Univ. Calif. Publ. Bot. 3: 169. 1907.

leaves in these specimens are flat and 1 mm. wide; the bracts have each a strong midrib paralleled by two other ribs exactly as in the type of *B. platycarpha* except that the midrib is slightly more prominent. Although there is some variation in the shape of the involucre bracts, this cannot be correlated with other characters. For example, Dr. Greene's Vallejo plants of *B. carnosae* have bracts with an outline exactly like those of his Byron Springs specimens which have pinnatifid leaves and which must therefore be accepted as *B. platycarpha*.

§ DICHAEATA

This section is distinguished from all the preceding by its uniformly dimorphous pappus. However, the achenes are sometimes entirely devoid of pappus in plants which are otherwise exact counterparts of the pappus-bearing forms. It is thus seen that the character of these structures when present is of more importance than their mere presence or absence, a principle which holds in other groups as well. Furthermore, this regular alternation of the two kinds of pappus-scales on a single achene in species of DICHAEATA is of much greater significance than are the irregular and fluctuating pappus-forms in some species of EUBAERIA and PTILOMERIS.

B. tenella (Nutt.) Greene is undoubtedly an ecologic form of *B. uliginosa* (Nutt.) A. Gray. Specimens at the Herbarium of the Philadelphia Academy of Sciences, indicated as types by Nuttall, plainly belong to the well-known dwarf form of somewhat gravelly or scarcely alkaline soil, while the more robust and succulent form which represents typical *B. uliginosa* grows on lower and more or less alkaline ground. Slender specimens of *B. Fremontii* have been often labeled *B. tenella*, and this error has led to confusion concerning the proper status of the latter form.

With *B. Fremontii* (Torr.) A. Gray is included not only *B. Burkei* Greene, a form in which the pappus-bristles are reduced to one, but also *Lasthenia conjugens* Greene, the species which at one time led Dr. Greene to unite the two genera. This latter species was originally distinguished by the united bracts of the involucre and the polished olive-green achenes. In the herbarium of the University of California are two specimens of the type collection

and in them the bracts overlap in the usual manner of *B. Fremontii*; only by careful dissection can one demonstrate that they are sometimes lightly joined at the base. In no case do the bracts form a definite cup as in the true *Lasthenias*. The achenes are as described by Dr. Greene and exactly as in the epappose form of *B. Fremontii*. The association of absence of pappus with glabrousness of the achene is a common phenomenon in *Baeria*, where it occurs in *B. chrysostoma*, *B. hirsutula*, and *B. uliginosa*, as well as in *B. Fremontii*. But that *Lasthenia conjugens* is identical with *B. Fremontii*, or at the most a recent natural segregate, is indicated by the subglobose or dome-shaped strongly hirsute receptacle and hirsutulous as well as glandular tube of the disk-corollas, characters which do not occur in any *Lasthenia* and scarcely even in any *Baeria* except *B. Fremontii*. Since the two are alike in habit and in all other characters the obscure fusion of the involucreal bracts cannot be accepted as of specific and much less of generic value.

§ PTILOMERIS

In the section PTILOMERIS, the receptacle is not muriculate, as in all the preceding, but rather scrobiculate, for the achenes are set into small depressions in the receptacle which remain as pits after the achenes have fallen away, or it may be that the individual pedicels have fused with one another so as to present an even surface marked only by the depressions in their summits. This section differs from the others also in the more or less evident glandulosity of the herbage, and the leaves are more inclined to be pinnately parted.

In the North American Flora all hitherto described species of this section are included under *B. aristata* (Nutt.) Coville, in accordance with my reductions in an earlier account where the numerous forms are treated in detail.* This is because they evidently are the result of ecologic conditions or are based upon pappus characters which, from garden experiments and from field observation, have been found to be inconstant. That this reduction might become necessary was anticipated by Asa Gray as

* Univ. Calif. Publ. Bot. 3: 173. 1907.

early as 1859, when he expressed the opinion that all of Nuttall's species of *Ptilomeris* were probably forms of one.*

LASTHENIA

Lasthenia minima Suksd. was originally described as similar to *L. glaberrima* DC., but smaller, the peduncles short, and the inflorescence somewhat pubescent. Specimens of the type collection clearly indicate that it is only a dwarf form of the species with which it was compared. Although the peduncles are lightly puberulent, the involucre are nearly or quite glabrous except on the margins, while the floral and fruiting characters are exactly as in *L. glaberrima*. Specimens are sometimes found which exhibit more or less pubescence on their peduncles and still, because of their robust habit and other characters, are plainly referable to this latter species (e. g., Suisun, May 3, 1892, *Brandegee*). The margins of the involucre are usually if not always somewhat pubescent. The characters upon which *L. minima* rests are thus seen to be inconstant and I have therefore reduced it to *L. glaberrima*.

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* Bot. Mex. Bound. 97. 1859.